**Supplementary Table 1**: Multi-variable model for dementia using HE (identified by prescription for lactulose and rifaximin) as the only decompensating event

|  |  |  |
| --- | --- | --- |
|  | **aOR (95% CI)** | *p-value* |
| Age, per 10 years | 1.070 (1.065-1.075) | <0.0001 |
| Females vs. Males | 0.995 (0.820-1.207) | 0.9600 |
| Homelessness | 1.590 (1.472-1.717) | <0.0001 |
| Race/Ethnicity |   |   |
| Hispanics vs. non-Hispanic Whites | 1.147 (1.018-1.293) | 0.024 |
| Rural vs. Urban | 0.853 (0.790-0.921) | <0.0001 |
| Census region |   |   |
| Midwest vs. Northeast | 1.264 (1.128-1.416) | <0.0001 |
| South vs. Northeast | 1.18 (1.070-1.308) | 0.001 |
| West vs. Northeast | 0.941 (0.843-1.050) | 0.2770 |
| Charlson score | 1.406 (1.382-1.429) | <0.0001 |
| Etiology of liver disease |   |   |
| Alcohol liver disease | 1.185 (1.036-1.355) | 0.013 |
| Hepatitis C liver disease | 0.620 (0.571-0.673) | <0.0001 |
| Non-alcoholic steatohepatitis | 0.795 (0.709-0.893) | 0.001 |
| **Hepatic encephalopathy** | **2.083 (1.923-2.257)** | **<0.0001** |
| Chronic medical conditions |   |   |
| Cerebrovascular disease or stroke | 1.443 (1.338-1.556) | <0.0001 |
| Alcohol use disorder | 1.303 (1.162-1.462) | <0.0001 |
| Depression | 1.819 (1.698-1.950) | <0.0001 |
| Tobacco use disorder | 1.115 (1.036-1.200) | 0.003 |
| Head injury | 2.970 (2.637-3.344) | <0.0001 |

**Supplementary Table 2**: Validation of dementia and hepatic encephalopathy codes among patients with cirrhosis, stratified by presence/absence of each disease

|  |  |  |
| --- | --- | --- |
|  |  | Validation through chart review |
|  |  | Dementia | Hepatic encephalopathy |
| Diagnosis via ICD code | Total | Yes | No | Yes | No |
| Both | 22 | 14 (63.6%) | 8 | 7 (31.8%) | 15 |
| Only hepatic encephalopathy | 25 | 1 | 24 (96%) | 18 (72%) | 7 |
| Only dementia | 28 | 25 (89.3%) | 3 | 0 | 28 (100%) |
| Neither | 25 | 0 | 25 (100%) | 0 | 25 (100%) |